

REMARKS

I. Formalities

Applicants thank the Examiner for indicating that the Formal Drawings filed on January 25, 2002 have been accepted.

Applicants thank the Examiner for initialing and returning a copy of the PTO Form 1449 submitted with the Information Disclosure Statement filed on June 23, 2004.

However, Applicants note that the Examiner did not initial and return a copy of the PTO Form 1449 submitted with the Information Disclosure Statement filed on January 25, 2002 as requested in the Amendment filed on September 14, 2004. For the Examiner's convenience, a copy of the PTO Form 1449 is attached. Applicants respectfully request that the Examiner initial and return a copy of the aforementioned PTO Form 1449.

II. Status of the Application

By the present amendment, claims 1, 3, 12 and 14 have been amended. In addition, claims 2, 4-5, 13, 15-16 and 21-31 are hereby cancelled without prejudice or disclaimer. Claims 1, 3, 6-12, 14, and 17-20 are all the claims pending in the Application, with claims 1, 3, 12 and 14 being in independent form. Claims 1-5, 10-16, 21-23 and 26-29 have been rejected.

The present Amendment addresses each point of objection and rejection raised by the Examiner. Favorable reconsideration is respectfully requested.

III. Allowable Subject Matter

Applicants thank the Examiner for indicating that claims 6-9, 17-20, 24-25 and 30-31 would be allowed if rewritten in independent form. However, Applicants respectfully request that the Examiner hold in abeyance such rewriting until the Examiner has had an opportunity to reconsider (and withdraw) the prior art rejection of the other claims.

IV. Claim Rejections Under 35 USC § 102

The Examiner has rejected claims 1, 12, 21 and 27 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,583,527 to Fujisaki *et al.* (hereinafter “Fujisaki”). Applicants respectfully traverse these rejections for *at least* the independent reasons stated below.

According to the MPEP, “a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” (MPEP § 2131). Applicants respectfully submit that claims 1, 12, 21 and 27 positively recite features which are not disclosed (or suggested) by Fujisaki.

A. Independent Claim 1

Independent claim 1 requires (among other things):

...a total power detector for detecting a sum of currents supplied from said data drivers to said data electrodes within a time span which is greater than or equal to one sub-field and less than one frame, and for generating a total power control signal when said sum of currents exceeds a predetermined current level...

...a protection signal output circuit which outputs a first protection signal to restrain an operation of said data drivers to said control circuit in response to said total power control signal...

The grounds of rejection allege that the address current detecting unit 3, together with the comparator 4, as disclosed in Fujisaki, correspond to a protection signal output circuit, as recited in claim 1. In particular, the grounds of rejection allege that column 9, lines 55-58 and column 10, lines 1-3 of Fujisaki disclose the feature of outputting a first protection signal to restrain an operation of said data drivers, as recited in claim 1. Applicants respectfully disagree with the grounds of rejection.

Claim 1 recites the feature of a protection signal output circuit which outputs a first protection signal in response to a total power control signal. Claim 1 further recites a total power detector for generating a total power control signal when a sum of currents supplied from said data drivers to said data electrodes within a time span exceeds a predetermined current level. Additionally, claim 1 requires that the aforementioned time span is greater than or equal to one sub-field and, further, that said time span is also less than one frame.

In contrast, Fujisaki does not disclose or suggest the feature of outputting a first protection signal to restrain an operation of data drivers when a sum of currents supplied within a time span which is greater than or equal to one sub-field and less than one frame, exceeds a specified current value, as required by claim 1. In contrast to the requirements of claim 1, the first passage of Fujisaki cited by the Examiner discloses that “when a detected address current exceeds a certain value, any further sustaining discharge cycle within a sustaining discharge period of each sub-frame, is not executed.” (Column 9, lines 55-58). Further, Fujisaki discloses that “address current values [can] be detected in units of one frame to be displayed on the flat display, or in units of a plurality of frames and then averaged” (emphasis added). (Column 10,

lines 6-9). Fujisaki also discloses that an address frequency control circuit selectively disables certain sub-frames to hold the address current at a certain value or less. (Column 9, lines 47-60).

In other words, Fujisaki discloses that if the address current value, detected in units of at least one frame, exceeds a certain value, then a sustaining discharge cycle is not performed at a predetermined time instant in which the sustaining discharge is supposed to be done. (*See* column 9, lines 58-60). Alternatively, Fujisaki discloses that even if the sustaining discharge is performed, information is output so that the period of an on/off pulse for pixel display data generated by a given address electrode is seemingly shortened. (Column 9, lines 61-64). That is, Fujisaki merely discloses that when a detected address current, which is detected in units of at least one frame, exceeds a certain value, then the sustaining discharge cycle is controlled.

On the other hand, the second passage of Fujisaki cited by the Examiner, discloses that “address current flowing through the address electrodes may be detected and controlled individually.” (Column 10, lines 1-3). In other words, Fujisaki discloses that the address current flowing through each respective electrode, of the multiple electrodes in a particular display, may be detected in each electrode individually, and may be controlled in each electrode individually. (*See e.g.*, column 2, lines 21-23; column 7, lines 43-46; column 7, lines 63-66).

However, neither of these passages cited by the Examiner provide any suggestion whatsoever regarding outputting a first protection signal to restrain an operation of data drivers when a sum of currents supplied within a time span which is greater than or equal to one sub-field and less than one frame, exceeds a specified current value, as required by claim 1. As a result, Fujisaki does not disclose or suggest all the recitations of claim 1 and, therefore,

Applicants submit that independent claim 1 is not anticipated by (i.e. is not readable on) Fujisaki for *at least* these reasons. Thus, Applicants respectfully request that the Examiner withdraw this rejection.

B. Independent Claim 12

Independent claim 12 requires (among other things):

...detecting a sum of currents supplied from said data drivers to said data electrodes within a time span which is greater than or equal to one sub-field and less than one frame;

generating a total power control signal when said sum of currents exceeds a predetermined current level...

...restraining an operation of said data drivers in response to said total power control signal...

In view of the similarity between these requirements and the requirements discussed above with respect to independent claim 1, Applicants respectfully submit that the foregoing arguments as to the patentability of independent claim 1 apply *at least* by analogy to claim 12. As such, it is respectfully submitted that claim 12 is patentably distinguishable over Fujisaki *at least* for reasons analogous to those presented above. Thus, the allowance of this claim is respectfully solicited of the Examiner.

C. Independent Claim 21

Independent claim 21 has been canceled without prejudice or disclaimer. Therefore, the rejection of this claim is now moot.

D. Independent Claim 27

Independent claim 27 has been canceled without prejudice or disclaimer. Therefore, the rejection of this claim is now moot.

V. Claim Rejections Under 35 USC § 103 – Fujisaki in view of Awamoto

The Examiner has rejected claims 4-5, 15-16, 23 and 29 under 35 U.S.C. § 103(a) as being unpatentable over Fujisaki in view JP 11038930 to Awamoto *et al.* (hereinafter “Awamoto”). Applicants respectfully traverse this rejection for *at least* the reasons stated below.

The dependent claims 4-5, 15-16, 23 and 29 have been canceled without prejudice or disclaimer. Therefore, the rejection of these claims is now moot.

VI. Claim Rejections Under 35 USC § 103 – Fujisaki in view of Tonio

The Examiner has rejected claims 2-3, 13-14, 22 and 28 under 35 U.S.C. § 103(a) as being unpatentable over Fujisaki in view of U.S. Patent No. 6,522,314 to Tonio *et al.* (hereinafter “Tonio”). Applicants respectfully traverse this rejection for *at least* the independent reasons stated below.

In order for the Examiner to maintain a rejection under 35 U.S.C. § 103, Fujisaki, Tonio, or some combination thereof, must teach or suggest all of the limitations of claims 2-3, 13-14, 22 and 28. Applicants respectfully submit that neither Fujisaki, Tonio, nor any combination thereof, teaches or suggests all of the limitations of claims 2-3, 13-14, 22 and 28.

A. Dependent Claims 2, 13, 22 and 28

The dependent claims 2, 13, 22 and 28 have been canceled without prejudice or disclaimer. Therefore, the rejection of these claims is now moot.

B. Independent Claim 3

Independent claim 3 requires (among other things):

...a temperature detector for detecting a temperature around said data drivers and for generating a temperature signal when said temperature exceeds a previously set specified temperature;

an individual power detector for detecting an individual current supplied from at least one data driver among said data drivers to said data electrode, and for generating an individual power control signal in response to said temperature signal when said individual current exceeds a predetermined current level; and

a protection signal output circuit which... outputs a second protection signal to restrain an operation of said at least one data driver to said control circuit in response to said individual power control signal...

Tonio does not teach or suggest the feature of a protection signal output circuit which restrains an operation of a data driver in response to an individual power control signal, which is generated in response to a temperature signal (which in turn is generated when a temperature exceeds a previously set specified temperature), when an individual current exceeds a predetermined current level as recited in claim 1. In fact, the grounds of rejection do not point to any specific portion of Tonio that teaches or suggests this feature.

Furthermore, Awamoto does not cure the deficient teachings of Fujisaki and Tonio. Indeed, claim 3 recites the feature of a protection signal output circuit which outputs a second protection signal to restrain an operation of at least one data driver to a control circuit, in response to an individual power control signal. Claim 3 also recites that the aforementioned individual power control signal is generated by an individual power detector in response to a

temperature signal, when an individual current supplied from at least one data driver exceeds a predetermined current level. Moreover, claim 3 recites that the temperature signal is, in turn, generated by a temperature detector when a temperature around said data drivers exceeds a previously set specified temperature. Thus, claim 3 recites the feature of restraining an operation of at least one data driver when the temperature around the data drivers exceeds a previously set specified temperature and when, in addition, the individual current exceeds a predetermined current level.

In contrast to the recitations of claim 1, Awamoto does not teach or suggest restraining an operation of a data driver when a temperature exceeds a previously set specified temperature and when, in addition, an individual current supplied from at least one data driver exceeds a predetermined current level, as recited in claim 1. To the contrary, Awamoto teaches that the physical quantity leading to a rise in the temperature of driver ICs is controlled in response to detecting a temperature signal. (See paragraphs 0017, 0020 and 0027-0028).

That is, Awamoto teaches a feedback control of a drive circuit by detecting a temperature. And, as explained in the present specification, since Awamoto teaches that only temperature detection is performed, there exists a problem that the load to the power source and an individual driver cannot be detected directly. (Specification, page 15, lines 1-5). For this reason, as taught in Awamoto, a temperature as a reference needs to be reduced in order to appropriately reduce the current consumption and, thus, this feature causes excessive protection in temperature. (Specification, page 15, lines 5-8).

Thus, Applicants respectfully submit that independent claim 3 is patentable over Fujisaki, Tonio, Awamoto, and any combination thereof, for *at least* these independent reasons. Consequently, Applicants respectfully request that the Examiner withdraw this rejection.

C. Independent Claim 14

Independent claim 14 requires (among other things):

...generating a temperature signal when a temperature around said data drivers exceeds a previously set specified temperature;

detecting an individual current supplied from at least one data driver among said data drivers to said data electrode;

generating an individual current control signal in response to said temperature signal when said individual current exceeds a predetermined current level; and

restraining an operation of said at least one data driver in response to said individual current control signal.

In view of the similarity between these requirements and the requirements discussed above with respect to independent claim 3, Applicants respectfully submit that the foregoing arguments as to the patentability of independent claim 3 apply *at least* by analogy to claim 14. As such, it is respectfully submitted that claim 14 is patentably distinguishable over Fujisaki, Tonio, Awamoto, and any combination thereof, *at least* for reasons analogous to those presented above. Thus, the allowance of this claim is respectfully solicited of the Examiner.

VII. Claim Rejections Under 35 USC § 103 – Fujisaki in view of Kuriyama

The Examiner has rejected claims 10, 11 and 26 under 35 U.S.C. § 103 (a) as being unpatentable over Fujisaki in view of US Patent No. 5,956,014 to Kuriyama *et al.* (hereinafter “Kuriyama”). Applicants respectfully traverse this rejection for *at least* the reasons stated below.

A. Dependent Claim 26

Dependent claim 26 has been canceled without prejudice or disclaimer. Therefore, the rejection of this claim is now moot.

B. Dependent Claim 10

The dependent claim 10 incorporates all the novel and non-obvious recitations of its base claim 1. As explained above with respect to claim 1, Fujisaki fails to disclose or suggest the feature of outputting a first protection signal when a sum of currents supplied within a time span which is greater than or equal to one sub-field and less than one frame, exceeds a specified current value, as required by claim 1. Further, Kuriyama also fails to teach or suggest this feature.

Accordingly, Fujisaki, Kuriyama, and any combination thereof, is incapable of teaching or suggesting the novel recitations of base claim 1 and, therefore, Applicants submit that dependent claim 10 would not have been obvious from the cited references for *at least* these reasons. Thus, Applicants respectfully request that the Examiner withdraw this rejection.

Further, independent claim 1 recites (among other things):

...a temperature detector for detecting a temperature around said data drivers and for generating a temperature signal when said

temperature exceeds a previously set specified temperature;

an individual power detector for detecting an individual current supplied from at least one data driver among said data drivers to said data electrode, and for generating an individual power control signal in response to said temperature signal when said individual current exceeds a predetermined current level; and

a protection signal output circuit which... outputs a second protection signal to restrain an operation of said at least one data driver to said control circuit in response to said individual power control signal...

In view of the similarity between these requirements and the requirements discussed above with respect to independent claim 3, Applicants respectfully submit that the foregoing arguments as to the patentability of independent claim 3 apply *at least* by analogy to claim 1. In particular, for *at least* reasons analogous to those presented above with respect to claim 3, neither Fujisaki, Tonio, Awamoto, nor any combination thereof, teaches or suggests the above features. Further, Kuriyama fails to cure the deficient teachings of Fujisaki, Tonio, and Awamoto. Therefore, Applicants submit that claim 10 is allowable *at least* by virtue of its dependency on claim 1. Thus, the allowance of this claim is respectfully solicited of the Examiner.

C. Dependent Claim 11

The dependent claim 11 incorporates all the novel and non-obvious recitations of its base claim 3. As explained above with respect to claim 3, neither Fujisaki, Tonio, Awamoto, nor any combination thereof teaches or suggests all the features of claim 3. Further, Kuriyama fails to cure the deficient teachings of Fujisaki, Tonio, and Awamoto. Accordingly, Fujisaki, Kuriyama, and any combination thereof, is incapable of teaching or suggesting the novel recitations of base

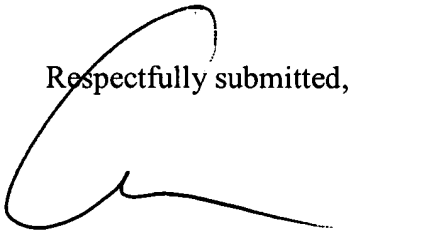
claim 3 and, therefore, the dependent claim 11 would not have been obvious from the cited references for *at least* these reasons. Thus, Applicants respectfully request that the Examiner withdraw this rejection.

VIII. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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23373

CUSTOMER NUMBER

Date: June 14, 2005